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Sustainable business model innovation: exploring evidences in sustainability reporting

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Abstract

In order to incorporate sustainability into business, firms need to go beyond voluntary social and environmental initiatives. Sustainable business model (SBM) can support managers to better understand how it can contribution to global sustainable development through firm's value proposition and including methods of value creation, delivery and capture. In this sense, opportunities to innovations in firms' SBM can be derived from the assessment of their business model using corporate sustainability as dominant paradigm. So, a comprehensive and integrative performance measurement framework for SBM is proposed to support the identification of sustainability innovations. In this context, the purpose of this paper is to explore the contributions and limitations of the proposed framework. The methodological approach chosen is secondary data analysis, by using content analysis to extract evidences from sources such as corporate websites, annual and sustainability reports of four industry group leaders according to Dow Jones Sustainability Indices in 2014. Two of them belong to consumer goods manufacturing and the others are retailers.

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*Keywords:*Sustainable business model, performance measurement, corporate sustainability

1. Introduction

Current configuration of societal actors and their interaction are failing to guarantee a sustainable use of natural resources. The indication of this critical situation is not recent [1] and still not enough effort and results to global sustainable development is put in practice [2]. One of the actors responsible for this situation are the firms, which can count on technological and financial capacity [3] and, at the same time, carry a institutional role [4] to contribute to global sustainable development. So, despite controversies in the definition of sustainability and sustainable development [5], the use of the term corporate sustainability is referred as this capacity of firms to contribute to global sustainable development and all the challenges regarding economic, social and environmental interconnections together with short, medium and long term aligned and conflicting demands.

The literature has been indicating opportunities for competitive advantage with corporate social responsibility initiatives [6]. In particular, there are opportunities for firms by promoting shared values, in which the success of the firm is directly connected to society progress [7]. In this context, innovation is fundamental to make firms move beyond traditional models towards sustainable business models [8], [9].

So, firms face the challenge of incorporating sustainability into their business, seeking to contribute to global sustainable development. This conducts to the research objective of the paper, which is to propose and discuss a framework for the assessment of corporate sustainability performance, seeking to identify opportunities for innovations towards sustainable business models. It was built based on a performance measurement system framework called performance prism, that encompasses five dimensions: stakeholders' satisfaction, strategic drivers, business processes, capabilities and

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stakeholders' contributions [10]. This is one of many examples that indicates the importance of revisiting consolidated literature with the lens of sustainable development challenges, bringing tested concepts and solutions to support corporate sustainability.

In order to address this research objective, content analysis of secondary sources was chosen as research method. This approach was chosen, given the relevance of communicating activities and results related to corporate sustainability [11]. The research conducts content analysis to extract evidences from sources such as corporate websites, annual and sustainability reports of four industry group leaders according to Dow Jones Sustainability Indices (DJSI) in 2014. Two of them belong to consumer goods manufacturing and the others are retailers.

2. Theoretical background

Considering that model is a simplification of reality with a specific purpose, SBM can represent a simplification of the logic that firms use to engage their set of objects, concepts and relationships [12] to contribute to global sustainable development. One possible ways to understand business models is using the elements proposed by Richardson (2008) [13], which involves three main elements: value proposition (product/service, customer segments and relationships); value creation & delivery system (key activities, resources, technologies, etc.); and value capture (cost structure and revenue streams).

Current business models, restricted in seeking short term and revenue centred value, are failing in promoting corporate sustainability. This situation demands new ways of doing business, in which environmental depletion and social downside does not count as mere externalities [7], [14]. Innovations to enable and reinforce SBM are necessary to develop and implement solutions embedded in business to reduce firm's negative impact on society and environment and to promote social, environmental and economic benefits for internal and external stakeholders [9].

In summary, the concept of SBM innovation encompasses the challenge of *innovating* (developing and implementing new solutions for products, processes, marketing and/or organization), in order to improve *corporate sustainability performance* (firm's contribution to global sustainable development), that is embedded in firm's core *business model* (firm's configuration to propose, create, deliver and capture value).

The publications on sustainability measurement and accounting have been contributing with several TBL indicators and frameworks [15]–[17]. Moreover, research on investigating the positive or negative correlation between TBL indicators have been conducted, for example in [18]–[20], but they are many times inconclusive or too limited in terms of number of variable considered [21], [22].

Given the need for a dynamic sustainability measurement framework to enable a critical analysis of SBM. with the logic of leading and lagging indicators [23], a comprehensive and integrative performance measurement framework for SBM is proposed combining the performance prism [10] with the business models elements of value proposition, value creation & delivery and value capture [13] using the corporate sustainability lens. Sub-section 2.1, 2.2 and 2.3 are dedicated to further discuss about the stages of sustainable value process and sub-section 2.4 summarizes this arguments with the description of the proposed framework.

2.1. Sustainable value proposition

In the context of SBM, value proposition refers to stakeholders beyond the "classical" customer, such as in [12], or investors/shareholders. However, in the discussion on the proposition of *sustainable* value, firms are pushed to consider also other stakeholders such as employees, trade associations, suppliers, governments, non-governmental organisations, communities [24], but also environment and society [3]. Under this logic, firms can be considered successful if their supporting companies and infrastructure around it are also performing successfully [7].

This reinforces the contribution of stakeholder theory [24]–[27] to corporate sustainability challenges, as discussed for example in [28], [29]. Combining the fact that value proposition is what the firm has to offer [13] and the stakeholder theory, firm's sustainable value proposition is elaborated based on internal and external stakeholders' needs and wants. Nevertheless, aligning stakeholders' objectives is not always trivial, since they can be also conflicting [28]. So the challenge is to find ways to do business at creating benefits for the firm itself, but also for the firm's stakeholders, seeking to satisfy them in the short term, but also in the long term. This mutual benefits can be referred by the literature as shared values [7], win-win solutions [30] or sweet spots [31]. Despite specific aspects for each concept, they have in common the potential firms have to contribute to sustainable development, when making decisions considering not only economic, but also environmental and social impacts.

In order to incorporate this logic into business, firms need to define strategic drivers to orient their decisions on how to satisfy their internal and external stakeholders. In this context, firms can count on technological, social and/or organisational innovations in the way they do business [8], [9]. So, sustainability strategies can propose new products and markets [7], [32], redefine productivity in the value chain [7], [32], build new collaborative value chain [7], etc.

Relating the sustainable value proposition SBM element to performance prim framework, two dimensions emerge as relevant. The first is the stakeholders' satisfaction performance dimension, making explicit and systematic the consideration of stakeholders beyond shareholders and customers in the sustainable value proposition. The second dimension serves to indicate the strategic drivers towards corporate sustainability, emphasizing the main corporate objectives to implement win-win solutions to satisfy firm's stakeholders.

2.2. Sustainable value creation and delivery

In the phase of sustainable value creation and deliver, the main aspects to put the value proposition into practice is considered [13]. This element of SBM encompasses business

processes, such as Porter's [33] primary activities (inbound logistics, production, outbound logistics, marketing and sales, services) and secondary activities (firm infrastructure, human resource management, information and communication technology, procurement) [13]. Focusing on sustainable value creation and delivery, the management of business processes should consider not only economic, but also social and environmental drivers [30] for decision making.

In order to enable these processes, the firm can count on its tangible and intangible capabilities and resources. corporate sustainability are pushed to develop specific capabilities and resources, such as capability to innovate firm's business model [34], [35], technologies to enable sustainable products and processes [36], [37], responsible/sustainable leadership [38], [39], reputation of corporate sustainability [40], amongst others. Van Kleef and Roome (2007) complied from the literature several specific capabilities needed to enable innovation for sustainability: system thinking; learning; integration between business, society and environment; development of alternative dynamic business models; networking; and collaboration building [34].

Given the emphasis for stakeholder management in the sustainable value proposition element of SBM, an important capability to be managed and developed is the network and alliance capability. This includes collaboration and cooperation towards bridging business interests with imperatives for community development [41], with partners for research and development cooperation [32], [40] and with suppliers [42]. That is because the complex nature of sustainability challenges demands firms to engage the different stakeholders towards integrative solutions with consideration of multi-objectives [28]. In this context, a mix of top-down and bottom up mechanisms can be useful to overcome collaboration and coordination challenges [28].

As discussed in this sub-section, structured assessment of sustainable value creation and delivery can count with the other performance dimensions of the prism framework: business processes, capabilities and stakeholder contribution. That is because the composition of these three dimensions build the way firms are put their value proposition in practice. A critical analysis of each of these dimensions as well as the interaction between them have potential to identify opportunities for improvement of sustainability performance or for reducing economic, environmental and social risks.

2.3. Sustainable value capture

Value proposition, creation and delivery do not guarantee successful business, if the firm is does not capture this value [13]. Traditional literature on business model points this element cost structure and revenue streams [9], [43]. In the context of corporate sustainability, economic results are not enough to ensure sustainable value capture. That is because sustainable development is about collective axiological objectives [5], in other words, is about realizing value for the firms and its internal and external stakeholders, considering not only short term impacts, but also long term consequences [44].

Under this logic, TBL performance indicators such as those proposed by Global Reporting Initiative (GRI) are an attempt to measure economic, environmental and social impacts of firms [17]. For example, the investments in eco-efficiency enables value capture for the firm (reducing expenses with production inputs such as raw material, energy and water), for the environment (reducing depletion and promoting conservation of natural resources) and for the society (reducing heath problems due to less pollution and emissions) [9]. Despite its importance and contribution, sustainability indicators suffers from relevant limitations. While measuring water consumption reduction and energy saving may be relatively an objective process, assessing impacts of a firm on society may be subjective. For example, it is challenging to assess the contribution of the fast food companies to the increasing population suffering from obesity, since several other influences play their role in this scenario.

One important aspect to ensure sustainable value capture is to properly communicate firms impacts. An appropriate dissemination of sustainability performance of a firm may influence consumer decision [45]. In this sense, sustainability reporting can be an important instrument to make explicit the benefits for firm's stakeholders. Moreover, sustainability reporting can reduce information asymmetry in the stock market, mainly for environmental technical reports [46].

Assessing not only the value currently captured, but also firm's sustainable value missed and destroyed can also provide interesting insights to innovations for SBM [47]. These types of value are still not well approach by the literature, but are important concepts. They represent the value that the firms could capture, but are not currently doing it., and indicate if firm's activities are adverse to stakeholder value.

2.4. Conceptual framework

Based on the literature discussed, the present research proposes a dynamic framework for measuring sustainability performance of SBM, making explicit the relationship between indicators. With a critical analysis of current SBM, firms can find opportunities for innovation towards sustainable solutions for their business. The framework is composed by two layers, as shown in Fig. 1. The first is a well-disseminated performance measurement system approach called performance prism [10], [48]. The authors propose five performance dimensions: stakeholders' satisfaction, strategic drivers, business processes, capabilities and stakeholders' contributions. The main questions represented by each dimension is summarized in Table 1. One relevant aspects of measuring performance is the possibility to represent leading and lagging indicators [23]. This is viable in the performance prism, since it enables the firm to go beyond having a list of performance indicators, as proposed for example by [17]. The list is important for guidance, but are not enough, since synergies and tradeoffs between indicators are not represented. Addressing this issue, the performance prism present a logic between its dimensions, as represented in the questions of Table 1. As made evident, each question (expect the stakeholder satisfaction one) is dependent of another performance dimension.

The second layer is represented by the three elements of SBM namely sustainable value proposition, creation & delivery, and capture [9]. These elements were put in a cyclical representation, reinforcing the crossed impact between them and the need for constant innovation of SBM, with critical analysis of the way firms are planning and executing their sustainable value network.

As represented in Fig. 1, the definition of sustainable value proposition is closer related to firms sustainability performance on stakeholders' satisfaction and corporate strategic drivers. Both dimensions make explicit whose value the firm intends to promote and how. The other three dimensions focused by sustainable value creation & delivery are dedicated to what the firm is doing and with what (capabilities and contributions) it is making business in practice. The element of sustainable value capture is represented throughout the five performance dimensions, since it represents the impacts companies cause in each aspects of its business.

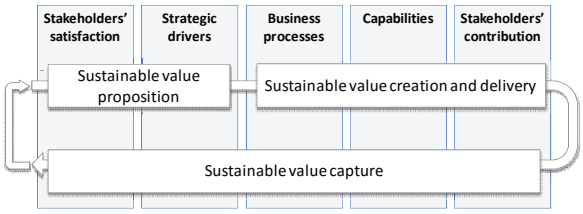

Fig. 1. Performance dimensions for sustainable business model.

Table 1. Content of the performance dimensions.

Performance dimension	Main questions	SBM elements*		
		P	C&D	C
Stakeholders' satisfaction	Who are the important stakeholders and what do they want and need?	X		X
Strategic drivers	What are the strategies required to promote stakeholders' satisfaction?	X		X
Business processes	What are the processes (activities) are needed to deliver the strategies?		X	X
Capabilities	What are the capabilities required to put the processes in practice?		X	X
Stakeholders' contributions	What are the stakeholders' contributions to enable the business processes?		X	X

* *Note: sustainable value proposition (P), creation & delivery (C&D), and capture (C).*

3. Research method

Aiming at assessing firms business models using sustainability performance dimensions, the research is based on analysis of secondary data as research method. This method was successfully used in previous publication in the context of corporate sustainability, such as [49], [50].

Since SBM are still in its early stages in the literature and in practice, the first criteria to select firms to be analysed is high level of sustainability performance. This was assessed by the criteria of being indicated as industry leaders according to 2014 Dow Jones Sustainability Index (DJSI). This narrowed the research to 24 firms. Continuing to use intentional criteria to select the firms to be analysed [51], four firms were selected. Two are manufacturing firms and two are service providers. In order to make possible cross analysis another selection criteria was having a certain level of connection between the firms in terms of supply network. So, two manufactures of consumer goods and two retail firms were selected. Table 2 shows an overview of the firms selected.

Table 2. Firms selected for analysis

Firm	Sector - DJSI	Country	Type of industry
C1: Unilever	Food, Beverage & Tobacco	Netherlands / UK	Manufacturing
C2: Kao Corp.	Household & Personal Products	Japan	Manufacturing
C3: Woolworths	Food & Staples Retailing	Australia	Service
C4: Lotte	Retailing	Republic of Korea	Service

Data sources include mainly the respective sustainability report and annual report. These publication represent the publication of firms' main activities and results for 2014. These data sources were complemented by corporate websites and DJSI report for each firm.

Data analysis and discussions initiates with general description of each firm (such as declared mission and vision). Following, a deeper discussion on the secondary data is conducted, based on the conceptual framework proposed by the present research. This phase encompassed the compilation of evidences for each performance dimensions, the assessment of the relationship between these evidences and the identification of opportunities to SBM innovation. Research conclusions are then made evident, highlighting the main contributions and limitations of the research.

4. Results and discussions

The present section presents the main results and discussions of the data collected structured according the proposed framework. It initiates with a brief overview of the firms (4.1) and follows with each firm's discussion (4.2, 4.3, 4.4 and 4.5).

4.1. Overview of the firms analysed

Given the importance to incorporate sustainability into business [9], [52], it is expected that firm's strategy is also aligned with global sustainable development challenges. To analyse this alignment, Table 3 shows the comparison between the main aspects communicated by firms that delimit their strategy and sustainability approach. The evidence show that the firms tend to see strategic and sustainability challenges separated from each other, given the differences in their content. Some specific aspects of overlapping, however, are the reduction of environmental depletion and increase of positive social impact for C1; cooperation and inclusive business & diversity for C2; shareholder value for C3; cooperation, consumer driven and innovation for C4.

Table 3. Main highlights of each company's strategy (ST) and sustainability (SU) drivers.

	C1		C2		C3		C4	
	ST	SU	ST	SU	ST	SU	ST	SU
Cooperation			■	■		■	■	■
Consumer driven			■			■	■	■
Reduce enrionmental depletion	■	■		■				■
Employee development	■		■			■		■
Inclusive business and diversity		■	■	■		■		
Enlarge business, financial results	■				■			■
Increase positive socal impacts	■	■		■				■
Shareholder value					■	■		
Global perspective			■					■
Innovation							■	■
Brand management	■							
Observing things on-site			■					
Sustainable sourcing		■						
Communication			■					
Integrity				■				
Preparation for the future					■			
Quality orientation							■	
Open to challenge							■	
Efficiency								■

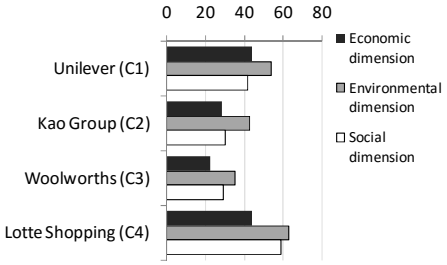

Fig. 2. Difference between firm's performance and the industry average. Scales used by DJSI are 0 (lower score) to 100 (higher score)

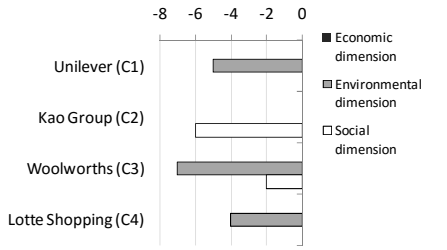

Fig. 3. Difference between firm's performance and the industry benchmark. Scales used by DJSI are 0 (lower score) to 100 (higher score).

The result of the firms' sustainability performance assessed by DJSI is compared with the average performance of the industry (Fig. 2) and the benchmark, e. g., the best within the industry (Fig. 3). As shown in Fig. 2, firms leaders tend to perform above industry average specially regarding environmental performance. Comparing with benchmark, Fig. 3 makes evident potential for improving environmental performance of C1, C3 and C4, while social performance seems to be the main potential for C2. It shows also that the industry leader in terms of sustainability performance are also leader (or are at the same level with other leaders) in terms of economic performance.

Further discussions on the firms regarding the performance dimensions of their respective SBM are conducted in the next sub-sections, with focus on new opportunities towards sustainability performance.

4.2. Unilever (C1)

The British–Dutch consumer goods producer Unilever is leader in the areas of food, refreshment and personal products. This industry is counting on the growing market of the emerging countries, tendency of products for health and wellness and opportunities for convenience food in developed countries. Despite several environmental initiatives, Unilever is still can improve its performance comparing with industry benchmark (Fig. 3).

Unilever's explicit strategic drivers belonging to Unilever Sustainable Living Plan (USLP) are: improving health and well being, reducing environmental impact, enhancing livelihoods, as explicit in Fig. 4. They serve as orientation for firm's innovations and marketing decisions. Although efficiency is not explicit in the firm's strategy, it is mentioned throughout the report. Mainly, this is connected to employees' capabilities, with special mention to the logistics process. The document shows also the firm's effort to build a strong network, but no systematic initiatives to engage non-governmental organisations and customers are made explicit (Fig. 4).

4.3. Kao Corporation (C2)

The Japanese Kao Corporation is divided in two main segments: consumer products (beauty care business, human heath, fabric & home care) and chemical business. Kao's industry is characterized by high competitiveness, multi-brand strategies, with high expenses in marketing, brand management and communication. In specific for chemical business, the sector have been demanded for adaptation due to stricter regulation and control of the use of natural resources.

The firm's philosophy is named "Yoki-Monozukuri" and means "a strong commitment by all members to provide products and brands of excellent value for consumer satisfaction" [53]. Although this statement is focused on consumers, firms mission includes explicitly the firm's willingness to contribute to "the sustainability of the world". The firm's sustainability pillars are conservation, community and culture.

Fig. 5 shows the evidences collected. Some interesting aspects are made explicit using the proposed framework. For instance, the firm sponsors and promotes social and environmental projects, but no engagement of communities in the core business processes is evident in the reports. Moreover, there is no explicit connection between environment and society satisfaction to firm's strategic drivers.

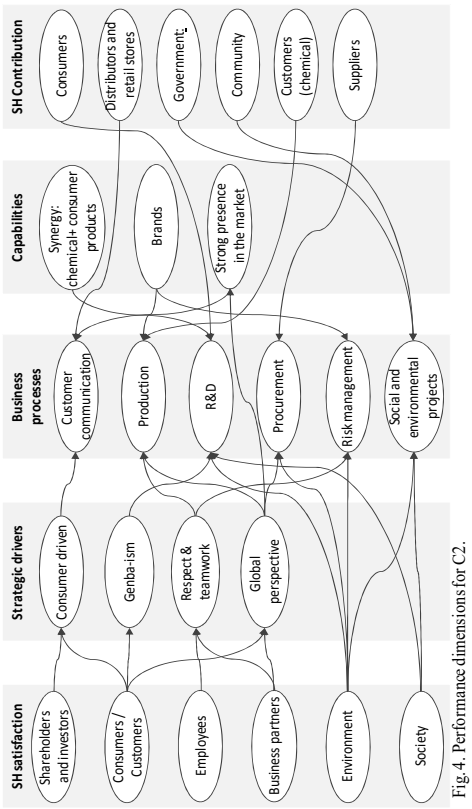

Fig. 4. Performance dimensions for C2.

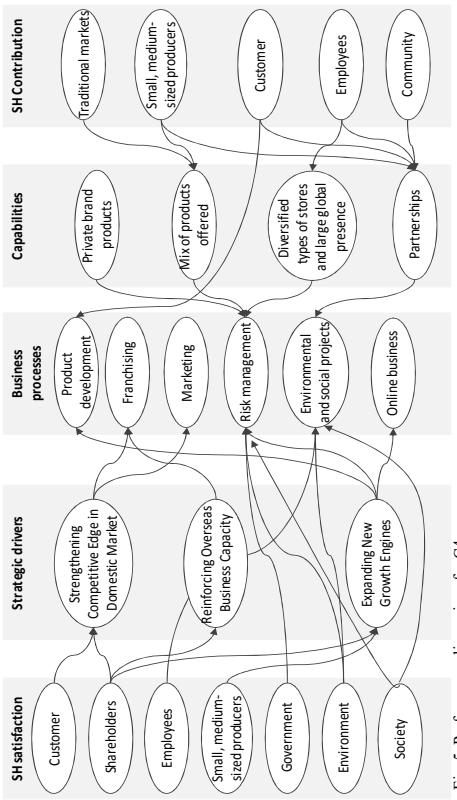

Fig. 5. Performance dimensions for C4.

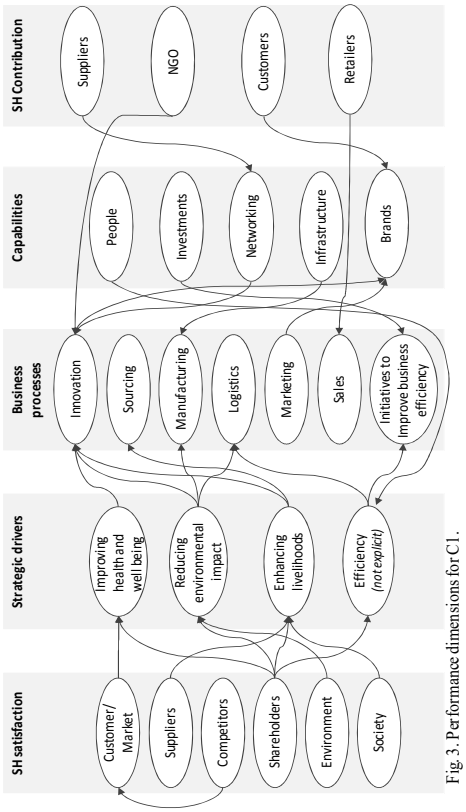

Fig. 3. Performance dimensions for C1.

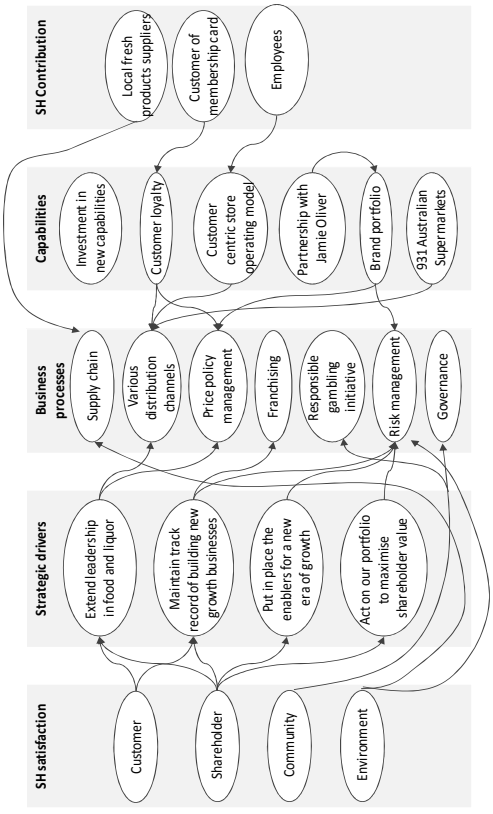

Fig. 4. Performance dimensions for C3.

Additionally, the firm states it is reinforcing its relationship with suppliers of certificated raw material, but does not bring evidence of actively involving them in the search for environmental-conscious products and processes in the research and development (R&D) activity. This could be a possible opportunity for the firm. Another opportunity for improvement of the firm is on its view of product lifecycle. That is because, as shown in their report, they consider a liner vision of product life cycle, with no attempt to build retro-alimentation (reuse/ recycle) on the production system (p. 81).

4.4. Woolworths Ltd (C3)

Originally from Australia, Woolworths has strong presence in several segments: food, liquor, gas stations, general merchandise, home improvement, and hotel venues. The food and staples retailing sector to which it belongs is strongly affected by mergers & acquisitions and increasing offerings of private labels or store brands.

Woolworths seems to have the most potential to improve sustainability performance in comparison to the other firms analysed by the research. This can be deployed by Fig. 2 and Fig. 3, showing respectively, lower difference to the average of the industry and higher gap to the benchmark performance.

Fig. 6 shows firm's dimension performance and makes evident, for example, that satisfaction of community/society and natural environment is not explicitly contemplated in the strategic drivers for the firm. The emphasis of the report and of firm's strategic drivers tend to be more focused on firm's continuous growth in terms of sales and number of stores. Nevertheless, C3 disclosures interesting initiatives, such as improvements in the supply chain of fresh products and reduction of waste. This can cause environmental, health benefits and incentive of local production.

4.5. Lotte Shopping (C4)

Lotte Shopping is a Korean retail group, composed by four divisions: Lotte Department Store, Lotte Mart (discount store chain), Lotte Super (grocery) and Lotte Cinema. Evident relevant aspects of this sector are the need to develop new strategies and technologies for effective customer relationship management, the growing diversification of distribution channels and the capacity to manage global supply networks. Fig. 7 shows the main evidences collected structured according to the proposed framework.

One of the aspects that comes to the attention in Lotte's sustainability report is the apparent disconnection between three strategic/sustainability drivers put in evidence: (1) business strategy, including strengthening competitive edge in domestic market, reinforcing overseas business capacity and expanding new growth engines, (2) sustainability strategies developed through crises and opportunities, including competitiveness, new global markets, differentiated products, efficient operation and environmental degradation & resource scarcity; and finally (3) strategies for sustainability management, including sustainable corporate culture, sustainable value creation and sustainable implementation.

Interesting about the firm's documents (annual and sustainability reports) is the emphasis in developing small and medium-sized merchants to provide local, fresh and healthy food. Furthermore, the firm claims to be engaged in win-win cooperation mainly with suppliers, customers and employees. Relevant processes communicated to firm's public are risk management and environmental/social projects, as relevant nodes in Fig. 7. The figure makes explicit the importance these two nodes to integrate stakeholders' satisfaction and firm's capabilities. It shows a possible improvement in rethinking the strategic drivers, as they are usually built as basis to connect corporate goals, activities and capabilities.

5. Conclusions

The research aimed at exploring the contributions and limitation of a comprehensive and integrative performance measurement framework for SBM used to support the identification of sustainability innovations. Based on secondary data, four sustainability leaders had their business models analyzed using the proposed framework.

The research shows that the performance prism dimensions of stakeholders' satisfaction, strategic drivers, business processes, capabilities and stakeholders' contributions [10] contribute the better assess the firms' business models, when seeking to promote sustainable value from the business. The framework shows the following benefits: structured organization of the information about firm's performance in the five dimensions; incentive to consider stakeholders beyond the traditionally included customers and shareholders; clear relation between the aspects contained in each dimension; deployment of the firms dimension performance into its business model, allowing it to rethink their sustainable value proposition, creation & delivery, and capture).

On the other hand, the framework presented also some limitations. For instance, there is an increased difficulty to visualize the nodes and relationships with each new information added to the framework. Additionally, specific nodes may have poor representation. For example, a node alone referred as "customer" admits different interpretations of their wants and needs, so its meaning should be complemented with the nodes it is connected to.

Regarding research limitations, an important one to be mentioned is the bias within the data collected, since they are mostly sourced by self declared statements. The data also gives a limited vision of the firms' performance, since many activities and results may be true to the organisation's reality, but were simply not reported or not well made explicit in the documents. Although the reality of the firm is broader and more complex than the documental evidences, the fact that the firm did not make explicit certain aspects of reality is already an evidence of low importance of such aspect or low clarity of its relevance to communicate.

Despite the limitation, the research bring interesting insights to both academics and practitioners. One of the research contribution is the incorporation of a well established performance measurement literature to promote solutions for

new challenges of sustainability. Another relevant contribution is the proposed framework that can be used by firms to assess their business models and identify innovation opportunities. The research also enlarges the knowledge on both performance measurement literature with a specific application of its constructs and SBM literature with an additional tool to promote innovation for sustainability. Future research is invited to further test and improve the framework, deepening the knowledge on the contribution of each performance dimension to SBM and improving the understanding of the relationship between the aspects of each performance dimension.

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